

REMARKS

Claims 1, 3-9, 21-23, 25-27, 30, and 32-35 will be pending upon entry of the present amendment. Claims 1, 3, 5, 8, 21, 25, 30, and 32 are being amended. Claims 2, 24, 28-29, and 31 are being canceled. Claims 10-20 were previously canceled. Claims 34-35 are new. No new matter is presented (see page 6, lines 19-26 for support of new claims).

The applicants appreciate the indication that claims 5-9, 24, and 29 were directed to allowable subject matter. Claims 5 is being placed into independent form. Claims 21 and 25 are being amended to include respectively the elements of claims 24 and 29, which are being canceled. Claims 6-9, 22-23, and 26-27 depend on claims 5, 21, and 25, respectively. According, claims 5-9, 21-23, and 25-27 are in condition for allowance.

Claims 1-4 and 32-33 were rejected under 35 U.S.C. § 103 as being unpatentable over admitted prior art found in the specification at pages 1-4 and Figure 1 ("APA"), and further in view of U.S. Patent No. 5,466,942 to Sakai et al. ("Sakai").

The APA and Sakai do not teach or suggest the invention recited in claim 1, as amended. Amended claim 1 recites an ion-implantation machine that includes means for decontaminating an implantation chamber by supplying air into the implantation chamber through a vent inlet. The APA does not suggest such means for decontaminating the implantation chamber. The APA teaches that Nitrogen may be introduced into an implantation chamber during maintenance to bring the chamber from a vacuum condition to atmospheric pressure in order to enable access to the chamber. However, the APA does not suggest that the Nitrogen can be used to decontaminate the chamber or that the Nitrogen could be in the form of air.

Sakai also does not suggest such means for decontaminating the implantation chamber. Instead, Sakai teaches decontaminating a chamber by introducing electrically neutral active species of oxygen and fluorine radicals (O*, F*) into a chamber. Such oxygen and fluorine radicals are produced by microwaving O₂ and CF₄ gases. The Examiner concedes that Sakai doesn't mention air, but notes that it is well known that air is a cheap and plentiful source of oxygen. That may be true, but Sakai does not suggest supplying O₂, which is the form of oxygen present in air, into the implantation chamber. In fact, Sakai explicitly teaches away from

introducing O₂ into the implantation chamber (col. 5, lines 10-26). Such a teaching away from introducing O₂ also would teach one not to supply air into the implantation chamber.

Even if Sakai had not explicitly taught away from introducing O₂ into the implantation chamber, Sakai would not motivate one skilled in the art to use air as the supply of oxygen. As is well known, air is comprised of about 80% nitrogen and 20% oxygen. Sakai mandates that the O₂ gas must be converted into radical oxygen (O*) by microwave energy before introducing the radical oxygen into the chamber. With such a high concentration of nitrogen in air, it is unlikely that a supply of radical oxygen could be produced by microwaving the air because any radical oxygen that is temporarily formed likely would re-combine with the excess nitrogen to form nitric oxide (NO) or nitrous oxide (N₂O). Thus, one of ordinary skill in the art would not be motivated by Sakai to use air as a supply of oxygen.

For the foregoing reasons, the APA and Sakai do not render obvious amended claim 1. Accordingly, amended claim 1 is in condition for allowance.

Claims 3-4 depend on claim 1, and thus, are also in condition for allowance.

Although the language of claims 32-33 is not identical to claim 1, the allowability of claims 32-33 will be apparent in view of the above discussion of claim 1. In addition, claim 32 further recites a pipe with a vent valve that controllably supplies air into the implantation chamber. As stated by the Examiner in indicating the allowable subject matter of claim 5, the prior art does not teach a vent valve and pipe coupled to a source of air.

New claims 34 and 35 depend on claims 32 and 1, respectively, and thus are nonobvious for the reasons described above. In addition, claims 34 and 35 recite that the air is supplied into the implantation chamber at a rate so as to maintain a pressure within the chamber between 1×10^{-5} and 5×10^{-5} torr. The APA and Sakai do not teach or suggest such maintaining such a pressure in the chamber. Instead, the APA introduces nitrogen at a pressure sufficient to bring the chamber to atmospheric pressure, which is approximately 760 torr. Sakai maintains the chamber pressure at 0.2 torr in one embodiment (col. 4, lines 26-27) and $1-4 \times 10^{-4}$ in another embodiment (Table 1 in column 6). The higher pressures taught by the APA and Sakai would not teach one skilled in the art to supply air into the implantation chamber to maintain a pressure between 1×10^{-5} and 5×10^{-5} torr. Accordingly, claims 34-35 are in condition for allowance.

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The Director is authorized to charge any additional fees due by way of this Amendment, or credit any overpayment, to our Deposit Account No. 19-1090.

All of the claims remaining in the application are now clearly allowable. Favorable consideration and a Notice of Allowance are earnestly solicited.

Respectfully submitted,
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